

## Novel Compact Solid-State UV Laser for Ozone DIAL, Phase I

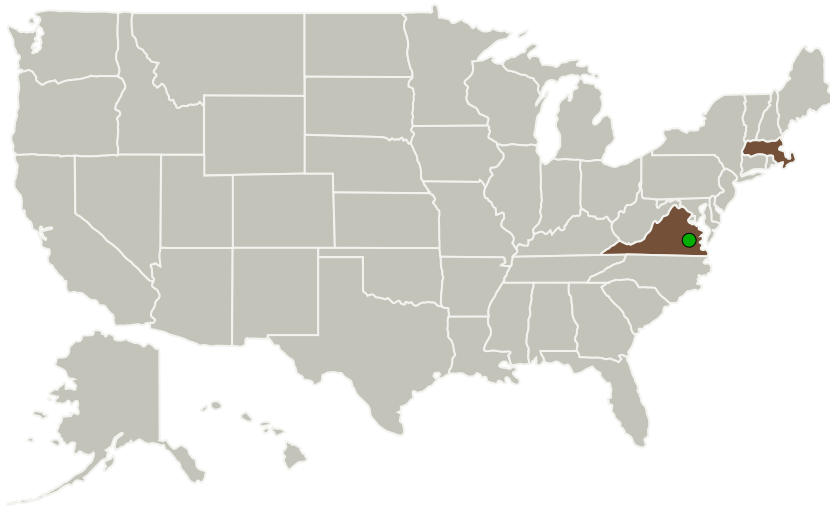
Completed Technology Project (2011 - 2011)



## Project Introduction

Q-Peak proposes to develop a compact, high-repetition rate, dual-line UV source based on the combination of an innovative, efficient, high-energy, single-frequency, 1047-nm Nd:YLF laser and efficient, robust nonlinear optical frequency converters. The pulse-pumped, repetitively Q-switched, Nd:YLF Master Oscillator - Power Amplifier system will produce single-frequency laser pulses with greater than 50 mJ of energy per pulse in a nearly diffraction-limited beam at a 1-kHz repetition rate. Conversion of Nd:YLF energy to UV suited for ozone DIAL will be accomplished by an efficient combination of harmonic generation and optical parametric oscillators.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Q-Peak, Inc.	Lead Organization	Industry	Bedford, Massachusetts
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



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## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

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### Primary U.S. Work Locations

Massachusetts

Virginia

### Project Transitions



**February 2011:** Project Start



**September 2011:** Closed out

#### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138370>)

### Organizational Responsibility

#### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

#### Lead Organization:

Q-Peak, Inc.

#### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

### Project Management

#### Program Director:

Jason L Kessler

#### Program Manager:

Carlos Torrez

#### Principal Investigator:

Yelena Isyanova

#### Co-Investigator:

Yelena Isyanova

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### Technology Maturity (TRL)

Start: **3**  
Current: **4**  
Estimated End: **4**



### Technology Areas

#### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
  - └ TX08.1.5 Lasers

### Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System